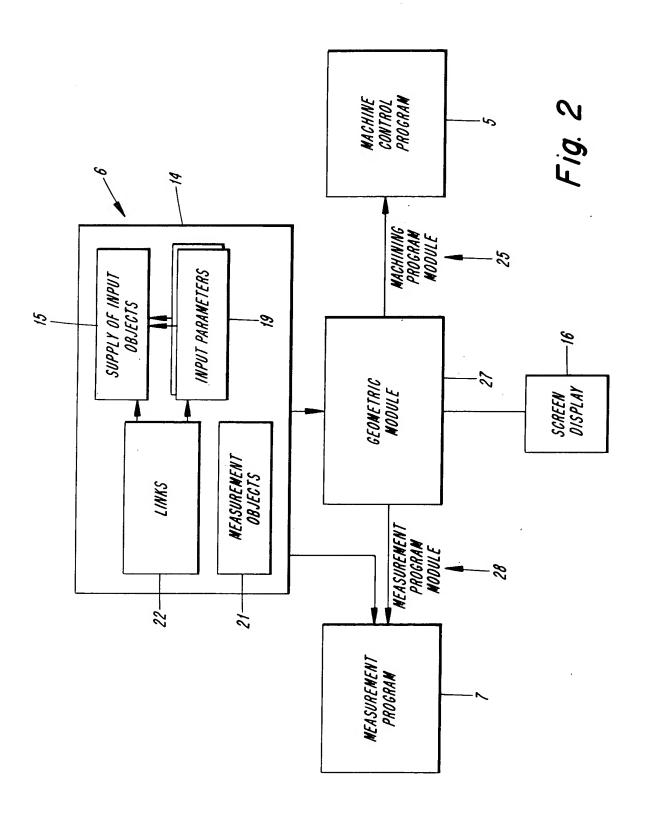


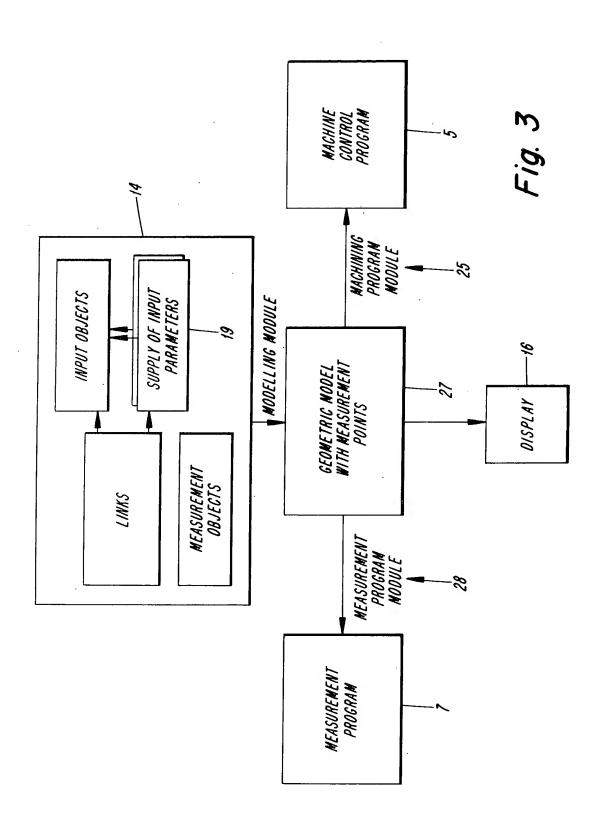
APPLN. FILING DATE: DECEMBER 19, 2003
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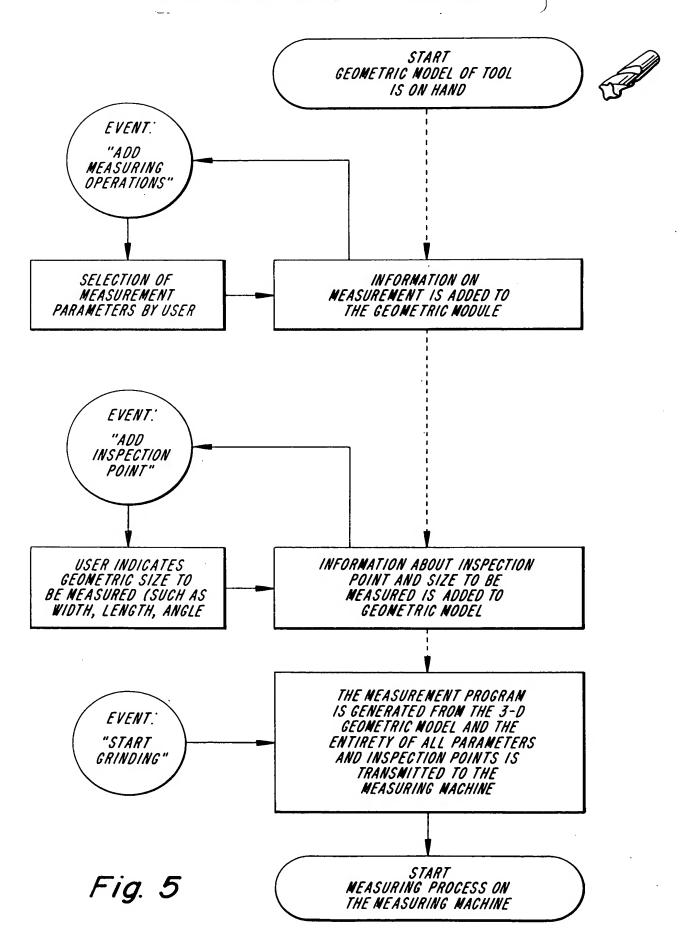
APPLN. FILING DATE: DECEMBER 19, 2003
TITLE: APPARATUS FOR INTEGRATED TOOL
MANUFACTURE AND METHOD THEREFOR
INVENTOR(S): MICHAEL SIMAKOV ET AL.
APPLN. SERIAL NO.: 10/739,147 SHEET 4 0 **SHEET 4 OF 11** START TOOL INPUT Fig. 4 3-D GEOMETRIC MODULE OF AN UNMACHINED BLANK OR A PARTLY MACHINED TOOL EVENT: "ADD CHIP SPACE" OR "ADD A NEW OPERATION" CHIP SPACE OBJECT IS GENERATED WITH DEFAULT PARAMETRIZING USER PARAMETRIZES CHIP SPACE OBJECT THE 3-DIMENSIONAL VOLUME THREE-DIMENSIONAL DEFINED BY THE GRINDING PATH AND GRINDING PATH OF THE GRINDING WHEEL IS SUBTRACTED THE GRINDING WHEEL FROM THE 3-D GEOMETRIC MODULE IS GENERATED AND (SIMULATION OF MATERIAL REMOVAL)-STORED IN MEMORY NEW GEOMETRIC MODULE EVENT. AN NC PROGRAM IS GENERATED "START FROM ALL THE GRINDING PATHS AND GRINDING" TRANSMITTED TO THE MACHINE

START GRINDING PROCESS ON THE MACHINE

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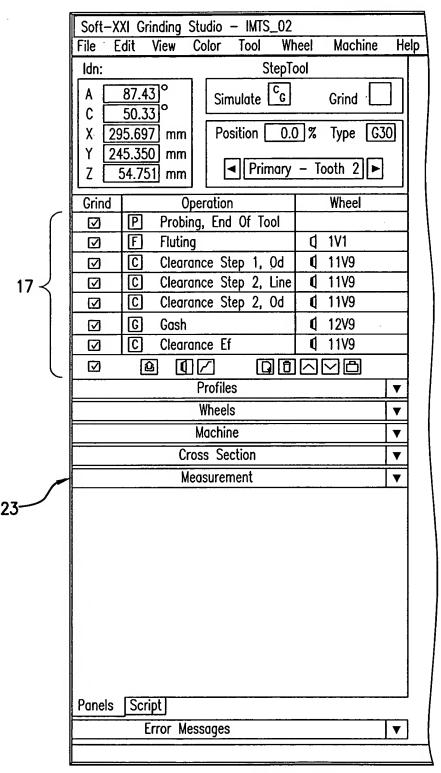


FIG.6A

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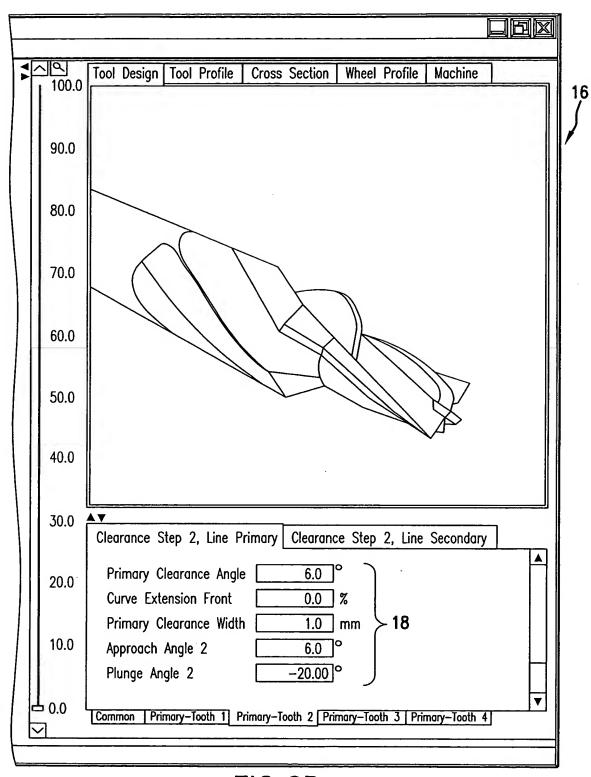


FIG.6B

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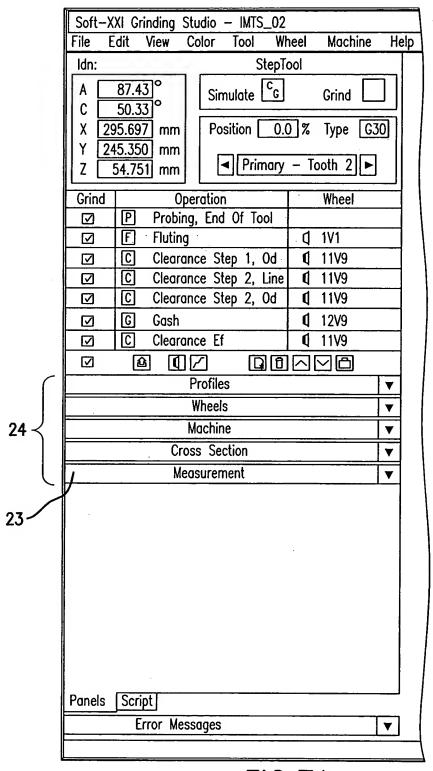


FIG.7A

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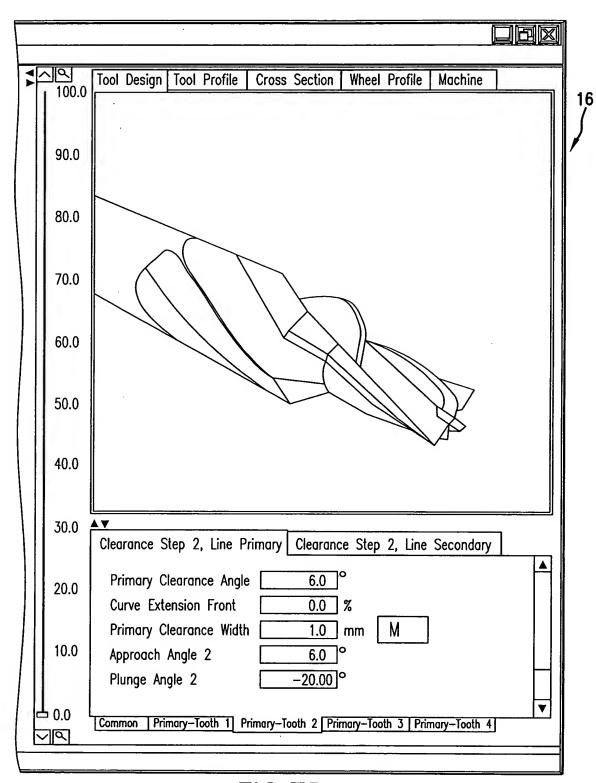


FIG.7B

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Soft—XXI Grinding Studio — IMTS_02 File Edit View Color Tool Wheel Machine Help		
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X 295.697 mm Position 0.0 % Type G30		
Y 245.350 mm GD: Toth 2 G		
Z 54.751 mm		
Grind	Operation	Wheel
Ø	P Probing, End Of Tool	
Ø	F Fluting	1V1
V	C Clearance Step 1, Od	1 11V9
Ø	C Clearance Step 2, Line	1109
Ø	C Clearance Step 2, Od	1 11V9
Ø	G Gash	1 12V9
	C Clearance Ef	1 11V9
Profiles ▼		
	Wheels	▼
Machine ▼		
Cross Section ▼		
Measurement T		
Po	Coordinates	Ø Move
A 2	23.176 -8.035 1.510 16	6.352 N1-N1
B 2	23.139 -8.054 0.286 16	S.119 N1-N1
Manual C. P. C. C.		
Measurement Function □ Distance and Angles ▼		
Measured Distance mm		
Measured Angle		
Panels Script		
Error Messages ▼		
Move: Fluting Tooth 2		

FIG.8A

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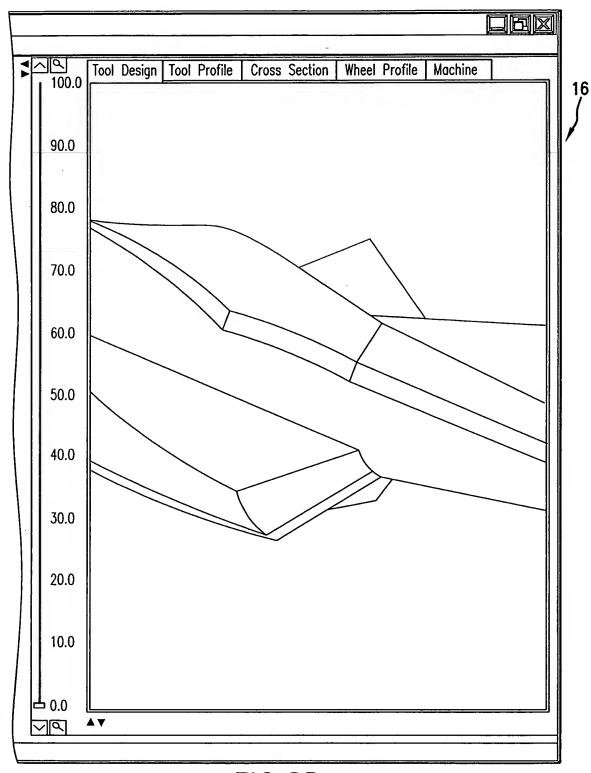


FIG.8B